

REMARKS / ARGUMENTS

The Examiner rejected claims 1-7, 13, 14, and 19-25 under 35 U.S.C. Section 103(a) as being obvious over by Fuller, U.S. 2002/0171617 A1 in view of Zhang et al., U.S. Patent No. 5,461,397.

Fuller discloses a display arrangement that includes (1) a backlight 124; (2) a stack that includes a polarizer 122, a glass substrate 120, an active matrix layer 118, a transparent electrode 116, and an alignment layer 114; (3) liquid crystal molecules; and (4) a stack that includes an alignment layer 110, a transparent electrode 108, a color filter array 106, a glass substrate 103, and an analyzer 102.

Fuller discloses that the backlight layer 124 includes an edge light source and a diffuser film. The edge light source may be an arrangement of cold cathode fluorescent tubes, an arrangement of LEDs, a combination of both or any well known source arrangement. Being an edge light source device, the backlight 124 is illuminated with light sources around a portion of its perimeter, where the lights is scattered, exits the backlight, and passes through the diffuser. In addition, the LEDs may be colored to effectuate color mixing and variable intensity level. Accordingly, the backlight layer 124 provides a uniform output across the display, albeit of different color or variable intensity level. See, Fuller, paragraph 34. The intensity of the light transmitted to each color filter element is determined by the liquid crystal element and the active element associated with that color filter element. See, Fuller, paragraph 39.

The Examiner notes that the display is capable of being operated at varied intensities and that the light transmitted to each liquid crystal element is determined by the liquid crystal element and the active element associated with the color filter element, and that Fuller fail to disclose that the backlight is spatially varied. In all cases, the illumination provided to the liquid crystal material has a uniform illumination.

Zhang et al. disclose a liquid crystal display device comprising a backlight device 32, which contains N subsections of independently controllable color light pulse generation elements and a backlight driver 108. Zhang et al. disclose, as illustrated in FIG. 2, that each of the backlight sections are uniformly illuminated and each is illuminated to the same intensity level, albeit at temporally different times during a frame. Accordingly, in all cases, the illumination provided to the liquid crystal material has a non-zero uniform illumination.

Claim 1 patentably distinguishes over Fuller et al. in view of Zhang et al. by claiming spatially varying the luminance of a light source illuminating a plurality of displayed pixels in response to a plurality of intensity values of the pixels and varying the transmittance of a light valve of the display in a non-binary manner, wherein the light source is spatially displaced at a location at least partially directly beneath the plurality of pixels, wherein different regions of the light source have different non-zero luminance.

In contrast, Fuller discloses a display system wherein the luminance of the backlight is uniform. Moreover, Fuller does not include any mechanism to support non-uniform illumination of the backlight.

In contrast, Zhang et al. disclose a display that has a spatially displaced light source that is either fully 'on' or fully 'off' depending on which sub-section is fully illuminated.

There is no suggestion nor motivation in Fuller nor Zhang et al. to modify their systems in the claimed manner. Further, even if Fuller was modified in the manner suggested by the Examiner, it would still not suggest that different regions of the light source have different non-zero luminance.

Claims 2-14 depend from claim 1, either directly or indirectly, and are patentable for the same reasons asserted for claim 1.

Claim 19 patentably distinguishes over Fuller in view of Zhang et al by claiming the light source being spatially displaced at a location at least partially directly beneath the plurality of pixels, wherein different regions of said light source have different non-zero luminance.

Claim 20 depends from claim 19 and is patentable for the same reasons asserted for claim 19.

The applicant would note that claim 21 was inadvertently referred to as a dependent claim when in fact claim 21 is an independent claim.

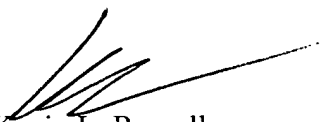
Claim 21 patentably distinguishes over Fuller in view of Zhang et al. by claiming a backlight for a display comprising a plurality of light sources, at least one light source being controllable to output light at a luminance level independent of a luminance level of light output by another of said light sources and a light valve varying the transmittance of light from said display in a non-binary manner, wherein different regions of said light source have different non-zero luminance.

Claim 22 depends from claim 21 and is patentable for the same reasons asserted for claim 21.

If the Examiner believes that for any reason direct contact with applicant's attorney would advance the prosecution of this application, the Examiner is invited to telephone the undersigned at the number below.

Respectfully submitted,
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Dated: February 16, 2005


George Painter